

**REMARKS**

Claims 1-29 are pending in this application. Claims 13, 24, 28 and 29 are amended. No new matter is added. Reconsideration of the application in view of the following remarks is respectfully requested.

Applicant appreciates the courtesies shown to Applicant's representatives by Examiner Nguyen in the February 23, 2005 personal interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

As discussed during the interview, attached are excerpts of two specifications published by the industry working group for Serial ATA (SATA-IO). Attached are pages page 295 of a specification entitled, "Serial ATA: High Speed Serialized AT Attachment," Revision 1.0a, published on January 7, 2003; and page 174 of the specification entitled "Serial ATA II Electrical Specification," Revision 1.0, published May 26, 2004. Applicant's representatives are currently trying to obtain a copy of the draft Serial ATA specification published in December 2000, which Applicant's representatives assert in the remarks below also required the use of solid tinned copper signal conductors within a serial ATA compliant cable. Applicant's representatives appreciate the Examiner's patience in allowing Applicant's representatives the opportunity to locate a copy of the reference.

**I. Objection**

The Office Action object to claims 24, 28 and 29 for use of the phrase "the group of." In response, claims 13, 24, 28 and 29 are amended to remove the phrase "the group of," as required by the Office Action.

Therefore, withdrawal of the rejection is respectfully requested.

**II. §103 Rejections of 1-6, 9, 10, 27 and 28**

Claims 1-6, 9, 10, 27 and 28 stand rejected under 35 U.S.C. §103(a) over U.S. Patent 6, 444,902 to Tsao et al. ("Tsao") in view of U.S. Patent 4,475,006 to Olyphant, Jr. ("Olyphant") and further in view of U.S. Patent 6,417,445 to Sato et al. ("Sato"). This rejection is respectfully traversed.

The Office Action asserts that it would have been obvious to one skilled in the art to use the alloy taught by Sato for the wires in Tsao, "since the alloy taught by Sato et al. provides both tensile strength and electrical conductivity."

However, Applicant respectfully submits that it would not have been obvious to combine the alloy taught by Sato for the wires in shielded flat cable type described by Tsao, for at least the reasons explained below.

A. As stated in Tsao at col. 2, lines 16-17, Tsao describes "an electrical cable used in a serial ATA connector for signal transmission." Further, at column 1, lines 10-15, Tsao describes "serial ATA" as an "interface for fast-talking drives, which will effectively double the bandwidth, or capacity for data, between disk drives-ranging from hard drives to CD-rewritable drives."

Applicant respectfully submits that the reference in Tsao to "serial ATA" is a specific reference to the "high-speed serialized ATA data link interface" under development by the industry working group for Serial ATA (See <http://serialata.org>). Intel formed the industry working group for Serial ATA (SATA-IO) in February 2000. Promoter members of the group include APT Technologies, Dell Computers, IBM, Maxtor Corporation, Quantum Corporation, and Seagate Technologies. The specification reached draft 1.0 status by December 2000, with more than 70 contributing companies covering the disciplines required to enable this technology.

Attached are page 295 of a specification entitled, "Serial ATA: High Speed Serialized AT Attachment," Revision 1.0a, published on January 7, 2003; and page 174 of the specification entitled "Serial ATA II Electrical Specification," Revision 1.0, published May 26, 2004. As discussed above, both specifications are published by the industry working group for Serial ATA (SATA-IO). As indicated in these documents, the Serial ATA specification requires that the signal conductors within the serial ATA cable be "solid tinned copper." The Applicant respectfully asserts that the Serial ATA specification published in December 2000 also required the use of solid tinned copper signal conductors within a serial ATA compliant cable.

Applicant respectfully asserts that it would not have been obvious to combine alloy taught by Sato for the wires in shielded flat cable type described by Tsao because doing so would have resulted in a cable that was not compliant with requirements for serial ATA cabling. Given that strength is not an issue to a serial ATA cable (i.e., a short cable used to connect components within a computer chassis) it would not have been obvious to use an alloy conductor, which has a conductivity that is less than that of copper, to create a cable that is non-compliant with the industry standard for serial ATA cables.

As stated in Sato at col. 2, lines 2-7, "[t]he elementary coaxial cable wire is characterized in that the core conductor is made of a metallic material including copper and silver so as to have a tensile strength of 120 kgf/mm<sup>2</sup> (kg/mm<sup>2</sup>) or more and an electrical conductivity of 60 to 90% by IACS (International Annealed Copper Standard)" in which annealed copper is taken as 100%. Applicant respectfully submits that such a significant drop in conductance would make the cable in Tsao unsatisfactory for its intended purpose as a serial ATA cable.

**B.** Further, Applicant respectfully asserts that strength is not an issue to a serial ATA cable (i.e., a short cable used to connect components within a computer chassis). Therefore,

given that the additional strength is not needed in Tsao, it would not have been obvious to use an alloy conductor, which has a conductivity that is less than that of copper (i.e., an electrical conductivity of 60 to 90% by IACS, as stated in Sato at col. 2, lines 2-7) and thus would have had worse electrical performance, in order to achieve greater strength, when no such additional strength was needed, and the resulting cable could not be used for its intended purpose.

As stated in the MPEP at 2143.01, "[I]f [the] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." Thus, there would have been no motivation to incur such a decrease in electrical performance, in order to achieve greater strength, when no such additional strength was needed, and the resulting cable would be unsuitable for its intended use as a serial ATA cable.

For at least these reasons, it is respectfully submitted that the alleged motivation to combine Tsao and Sato would not have existed, and that therefore the combination is improper. Therefore, withdrawal of the rejection is respectfully requested.

### **III. §103 Rejection of claims 13, 14, 17, 26 and 29**

The Office Action rejects claims 13, 14, 17, 26 and 29 under 35 U.S.C. §103(a) as unpatentable over Tsao in view of U.S. Patent 6,303,868 to Kawai ("Kawai").

The Office Action states that it would have been obvious to one skilled in the art to use the conductor taught by Kawai for at least the outermost conductor of Tsao et al. "since the conductor taught by Kawai provides sufficient conductivity and strength."

However, Applicant respectfully submits that it would not have been obvious to use a stranded wire as a conductor in Tsao, nor to combine the alloy taught by Kawai for at least the outermost conductor in the stranded wire, for at least the reasons explained below.

A. Applicant again respectfully submits that the reference in Tsao to "serial ATA" is a specific reference to the "high-speed serialized ATA data link interface" under development by the industry working group for Serial ATA (See <http://serialata.org>). Further, Applicant respectfully asserts that the Serial ATA specification published in December 2000 required the use of solid tinned copper signal conductors within a serial ATA compliant cable.

Applicant respectfully asserts that it would not have been obvious to combine a stranded conductor that included an alloy strand as taught by Kawai for the wires in shielded flat cable type described by Tsao because doing so would have resulted in a cable that was not compliant with requirements for serial ATA cabling.

B. Further, Applicant respectfully asserts that strength is not an issue to a serial ATA cable (i.e., a short cable used to connect components within a computer chassis). Therefore, given that the additional strength is not needed in Tsao, it would not have been obvious to use an alloy conductor, which has a conductivity that is less than that of copper (i.e., 90% that of annealed copper, as stated in Kawai at col. 3, lines 34-39) and thus would have had worse electrical performance, in order to achieve greater strength, when no such additional strength was needed, and the resulting cable could not be used for its intended purpose.

As stated in the MPEP at 2143.01, "[I]f [the] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." Thus, there would have been no motivation to incur such a decrease in electrical performance, in order to achieve greater strength, when no such additional strength was needed, and the resulting cable would be unsuitable for its intended use as a serial ATA cable.

For at least these reasons, it is respectfully submitted that the alleged motivation to combine Tsao and Kawai would not have existed, and that therefore the combination is improper. Therefore, withdrawal of the rejection is respectfully requested.

**IV. §103 Rejection of 24 and 25**

Claims 24 and 25 stand rejected under 35 U.S.C. §103(a) over Tsao in view of Sato. This rejection is respectfully traversed.

The Office Action states that it would have been obvious to one skilled in the art to use the alloy taught by Sato for the wires in Tsao, "since the alloy taught by Sato et al. provides both tensile strength and electrical conductivity."

For reasons stated above, Applicant respectfully asserts that the Tsao/Sato combination is improper. Therefore, withdrawal of the rejection is respectfully requested.

**V. §103 Rejection of Remaining Claims over Tsao/Sato Combination**

Claims 7, 8, 11 and 12 stand rejected under 35 U.S.C. §103(a) over Tsao in view of Sato, in view of Olyphant and further in view of JP411111070 ("JP070"). Claims 18 and 19 stand rejected under 35 U.S.C. §103(a) over Tsao in view of Kawai and further in view of Sato. For reasons stated above, Applicant respectfully asserts that the Tsao/Sato combination is improper. Olyphant and JP070 fail to overcome this deficiency. Therefore, withdrawal of these rejections is respectfully requested.

**VI. §103 Rejection of Remaining Claims over Tsao/ Kawai Combination**

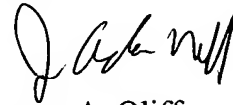
Claims 20-23 stand rejected under 35 U.S.C. §103(a) over Tsao, in view of Kawai and further in view of JP070. Further, claims 15 and 16 stand rejected under 35 U.S.C. §103(a) over Tsao in view of Kawai and further in view of Olyphant. For reasons stated above, Applicant respectfully asserts that the Tsao/Kawai combination is improper. Olyphant and JP070 fail to overcome this deficiency. Therefore, withdrawal of these rejections is respectfully requested.

**VII. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-29 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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**Attachment:**

"Serial ATA: High Speed Serialized AT Attachment," Revision 1.0a, January 7, 2003,  
(cover and page 295)

"Serial ATA II Electrical Specification," Revision 1.0, May 26, 2004,  
(cover and page 174).

JAO:JMH/hs

Date: February 25, 2005

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# **Serial ATA II:**

## **Electrical Specification**

Revision 1.0  
26-May 2004

**Dell Computer Corporation**  
**Intel Corporation**  
**Maxtor Corporation**  
**Seagate Technology**  
**Vitesse Semiconductor Corporation**



This 1.0 revision of the Serial ATA II: Electrical Specification ("Final Specification") is available for product design. Product implementations should ensure compliance with this specification.

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For more information about Serial ATA, refer to the Serial ATA Working Group website at [www.serialata.org](http://www.serialata.org).

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### 6.6.2.3 Assembly/Construction Requirements

Although construction methodologies are not specified, there are a few essential elements of the SATA cable that must be considered. Physical characteristics of the SATA cable might include the following items. See Figure 91 for details.

- Shielded Pairs (2)
- Solid Tinned Copper (26 AWG)
- White Foam Polyolefin (43.5 mil Diameter)
- Parallel Drain Pairs (2 pr., 28 AWG – Solid Tinned Copper)
- Aluminized Polyester Foil (1 mil thick w/35mil overlap)
- Foil may be the blue longitudinal wrap that is sealed with heat
- Jacket (20 mil PVC wall)

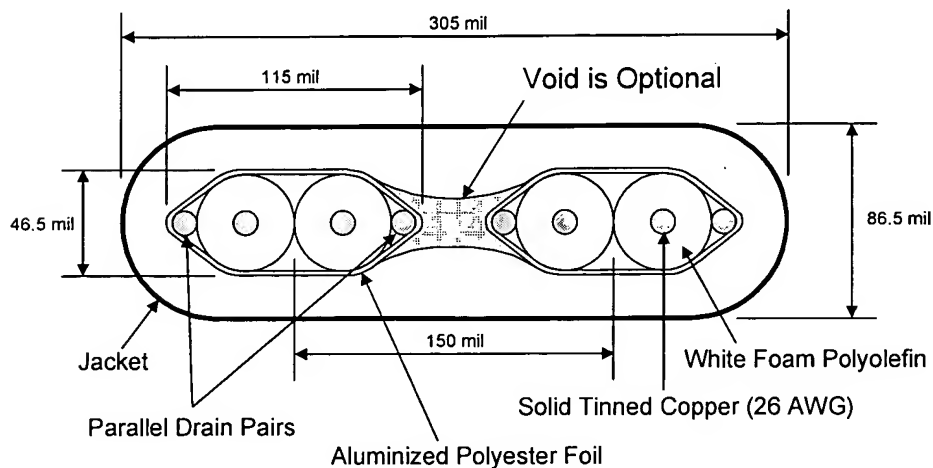


Figure 91: Detailed Cross-section of an Example Serial ATA Cable

### 6.6.2.4 Manufacturing Tests/Requirements

In addition to manufacturing SATA cables to meet cost and electrical constraints, it is also necessary to quantify the physical quality of the cables. Unless otherwise specified, all tests and measurements in Table 12 shall be performed within the following lab conditions:

- Cable/Connector Mated
- Temperature: 15° to 35° C
- Relative Humidity: 20% to 80%
- Atmospheric Pressure: 650 mm to 800 mm of Hg

The information in Table 12 outlines a specific group of tests that can be performed on the SATA cable to validate the quality of a cable. If an Electronic Industry Association (EIA) test is specified without a letter suffix in the test procedures, the latest approved version of that test shall be used.



# **Serial ATA:**

## **High Speed Serialized AT Attachment**

Revision 1.0a  
7-January-2003

**APT Technologies, Inc.**  
**Dell Computer Corporation**  
**Intel Corporation**  
**Maxtor Corporation**  
**Seagate Technology**

This 1.0a revision of the Serial ATA / High Speed Serialized AT Attachment specification consists of the 1.0 revision of the specification with the following errata incorporated:

2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 33, 34, 35, 36, 38, 40

The following errata were withdrawn and were not incorporated into this revision of the specification:

1, 27, 28

Details on individual errata can be downloaded from the Serial ATA Working Group website at [www.serialata.org](http://www.serialata.org).

This 1.0a revision of the Serial ATA / High Speed Serialized AT Attachment specification ("Final Specification") is available for product design. Product implementations should ensure compliance with this specification.

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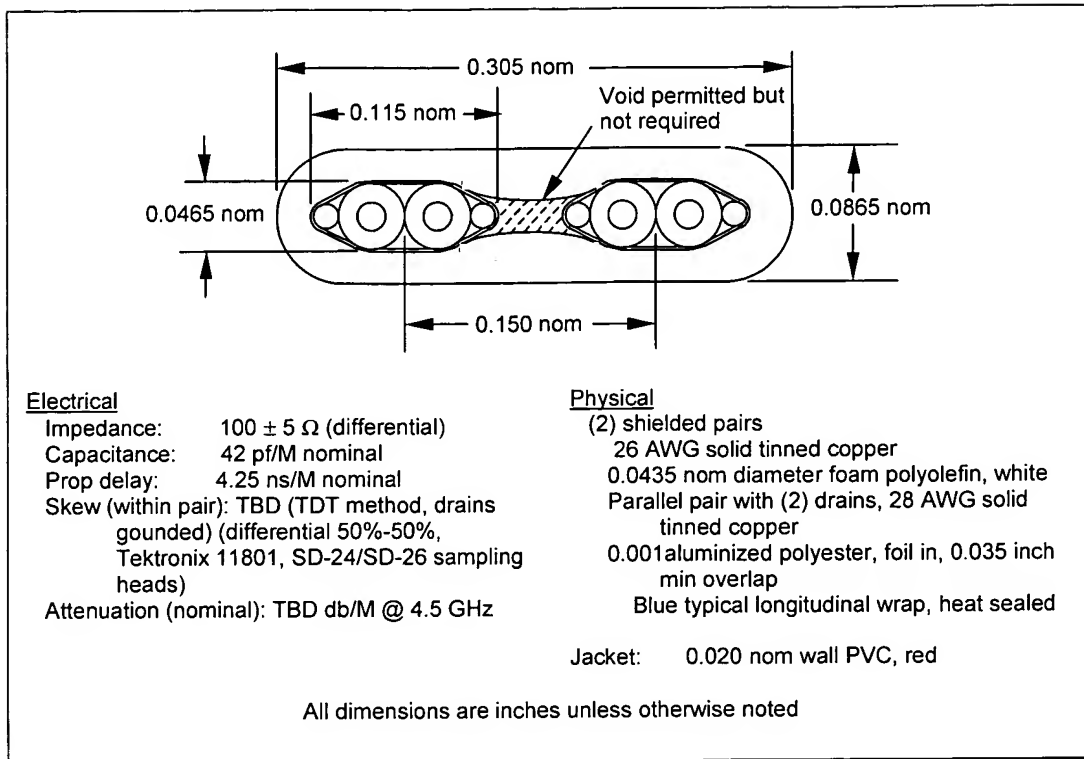
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**Figure 76 – Cable construction example**

### C.3 Contact material and plating

Table 31 shows the recommendations for the contact material and plating.